

Application No. 09/864,976
Amendment dated 21 June 2004
Reply to Office Action of 21 January 2004

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended) A composite comprising

_____ a first substrate; and

_____ a bonded mixture, said bonded mixture comprising a mixture of binder particles and super-absorbent polymer particles ~~that spontaneously form three-dimensional arrays of elongated channels within said composite upon contact with a liquid~~, wherein said binder particles are on average smaller than said super-absorbent polymer particles, and wherein at least some of said binder particles coalesce at least some of said super-absorbent polymer particles to each other and to said substrate, ~~;~~ and

_____ a wherein the three-dimensional array of elongated channels within said composite, formed after the super-absorbent polymer particles contact a liquid, which promotes liquid acquisition into said composite along the three-dimensional array of elongated channels prior to liquid absorption by the super-absorbent polymer particles.

Claim 2 (Original) The composite of claim 1, wherein at least some of said bonded mixture has the property of collecting liquid within said three-dimensional array, and the collected liquid in said array is absorbed by at least some of said bonded mixture.

Claim 3 (Original) The composite of claim 1, further comprising a second substrate, and said bonded mixture is between said first substrate and said second substrate, and wherein at

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least some of said binder particles coalesce at least some of said bonded mixture to said second substrate.

Claim 4 (Original) The composite of claim 1, wherein said bonded mixture has a dry thickness of less than about 2 millimeters.

Claim 5 (Original) The composite of claim 3, wherein said bonded mixture has a dry thickness of less than about 2 millimeters.

Claim 6 (Original) The composite of claim 1, wherein a liquid permeable acquisition layer is in liquid communication with said bonded mixture.

Claim 7 (Original) The composite of claim 3, wherein a liquid permeable acquisition layer is in liquid communication with said bonded mixture.

Claim 8 (Original) The composite of claim 1, wherein said first substrate is semi-permeable or impermeable to liquid.

Claim 9 (Original) The composite of claim 3, wherein said first substrate and said second substrate are either semi-permeable to liquid, impermeable to liquid, or a combination thereof.

Claim 10 (Currently Amended) A method of absorbing liquid comprising the steps of:

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- a) placing a composite adjacent to a liquid source, wherein said composite comprises
- a first substrate and a bonded mixture, said bonded mixture comprising
 - a mixture of binder particles, and
 - super-absorbent polymer particles, and that
~~spontaneously form~~
 - a three-dimensional array of elongated channels within said composite upon-formed after ~~contact~~ with a liquid from said liquid source,
 - wherein said binder particles are on average smaller than said super-absorbent polymer particles, and wherein at least some of said binder particles coalesce at least some of said bonded mixture to said substrate;
 - b) acquiring the liquid into the composite along the three-dimensional array of elongated channels; and
 - c) absorbing the liquid by means of at least some of said bonded mixture.

Claim 11 (Currently Amended) The method of claim 10, wherein at least some of said bonded mixture ~~has the property of collecting~~collects liquid from said liquid source within said three-dimensional array, and the collected liquid in said array is absorbed by at least some of said bonded mixture.

Claim 12 (Original) The method of claim 10, wherein said composite further comprises a second substrate, and said bonded mixture is between said first substrate and said second substrate, and wherein at least some of said binder particles

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coalesce at least some of said bonded mixture to said second substrate.

Claim 13 (Original) The method of claim 10, wherein said bonded mixture has a dry thickness of less than about 2 millimeters.

Claim 14 (Original) The method of claim 12, wherein said bonded mixture has a dry thickness of less than about 2 millimeters.

Claim 15 (Original) The method of claim 10, further comprising a liquid permeable acquisition layer in liquid communication with said bonded mixture.

Claim 16 (Original) The method of claim 12, further comprising a liquid permeable acquisition layer in liquid communication with said bonded mixture.

Claim 17 (Currently Amended) A liquid absorbent pad which comprises:

an outer layer of a substantially liquid-impervious material having an outer surface and an inner surface;

at least one composite segment positioned on said inner surface of said liquid impervious material, said at least one composite segment comprising:

a first substrate and a bonded mixture, said bonded mixture comprising a mixture of binder particles and super-absorbent polymer particles ~~that form a three-dimensional array of elongated channels within said at least one composite segment upon contact with a liquid~~, wherein said binder particles are on average smaller than said super-

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absorbent polymer particles, and wherein at least some of said binder particles coalesce at least some of said bonded mixture to said substrate, and

a three-dimensional array of elongated channels within said at least one composite segment after said at least one composite segment is contacted with a liquid; and

a liquid-permeable acquisition layer in liquid communication with said at least one composite segment, wherein at least a portion of said outer layer and said liquid permeable acquisition layer are directly or indirectly attached, and said at least one composite segment is sandwiched therebetween.

Claim 18 (Original) The liquid absorbent pad of claim 17, wherein said at least one composite segment further comprises a second substrate, and said bonded mixture is between said first substrate and said second substrate, and wherein at least some of said binder particles coalesce at least some of said bonded mixture to said second substrate.

Claim 19 (Original) The liquid absorbent pad of claim 17, wherein said at least one composite segment has a bonded mixture having a dry thickness of less than about 2 millimeters.

Claim 20 (Original) The liquid absorbent pad of claim 18, wherein said at least one composite segment has a bonded mixture having a dry thickness of less than about 2 millimeters.

Claim 21 (Currently Amended) A liquid absorbent pad comprising:

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a substantially liquid-impervious material having an outer surface and an inner surface;

a composite positioned on the inner surface of said substantially liquid impervious material, said composite comprising a first substrate and a bonded mixture, the bonded mixture comprising a mixture of binder particles and super-absorbent polymer particles, wherein the binder particles are on average smaller than the super-absorbent polymer particles, and wherein at least some of the binder particles coalesce at least some of the bonded mixture to the first substrate; and

~~, the super-absorbent polymer particles forming a three-dimensional array of elongated channels within said composite upon when said liquid absorbent pad is contacted~~ with a liquid.

Claim 22 (Previously Presented) A liquid absorbent pad of claim 21 wherein the three-dimensional array of elongated channels within the composite acquire any liquid in contact with said liquid absorbent pad into said composite prior to absorption of the liquid by the super-absorbent polymer particles.

Claim 23 (Previously Presented) The liquid absorbent pad of claim 21, wherein said composite further comprises a second substrate, and said bonded mixture is between said first substrate and said second substrate, and wherein at least some of said binder particles coalesce at least some of said bonded mixture to said second substrate.

Claim 24 (Previously Presented) The liquid absorbent pad of claim 22, wherein said composite has a bonded mixture having a dry thickness of less than about 2 millimeters.

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Claim 25 (Previously Presented) The liquid absorbent pad of claim 21, wherein said composite has a bonded mixture having a dry thickness of less than about 2 millimeters.